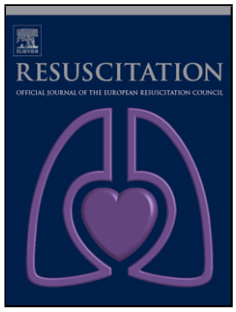

Title: Epinephrine Dosing Interval and Survival Outcomes During Pediatric In-Hospital Cardiac Arrest

Authors: Derek B. Hoyme, Sonali S. Patel, Ricardo A. Samson, Tia T. Raymond, Vinay M. Nadkarni, Michael G. Gaies, Dianne L. Atkins

PII: S0300-9572(17)30223-X
DOI: http://dx.doi.org/doi:10.1016/j.resuscitation.2017.05.023
Reference: RESUS 7195

To appear in: *Resuscitation*

Received date: 13-2-2017
Revised date: 25-4-2017
Accepted date: 22-5-2017

Please cite this article as: Hoyme Derek B, Patel Sonali S, Samson Ricardo A, Raymond Tia T, Nadkarni Vinay M, Gaies Michael G, Atkins Dianne L.Epinephrine Dosing Interval and Survival Outcomes During Pediatric In-Hospital Cardiac Arrest.*Resuscitation* http://dx.doi.org/10.1016/j.resuscitation.2017.05.023

Epinephrine Dosing Interval and Survival Outcomes During Pediatric In-Hospital Cardiac Arrest

Derek B. Hoyme MD[1]; Sonali S. Patel MD, PhD[2]; Ricardo A. Samson MD[3]; Tia T. Raymond MD[4]; Vinay M. Nadkarni MD, MS[5]; Michael G. Gaies MD[6]; Dianne L. Atkins MD[1]
for the American Heart Association Get With the Guidelines–Resuscitation Investigators

Affiliations:
(1) Stead Family Department of Pediatrics, University of Iowa Children's Hospital, Iowa City, IA, (2) Heart Institute, Children's Hospital Colorado, University of Colorado, Aurora, CO, (3) Children's Heart Center Nevada, 3006 S. Maryland Pkwy, Ste 690, Las Vegas NV 89109 (4) Department of Pediatrics, Medical City Children's Hospital, Dallas, Texas, (5) Department of Anesthesiology, Critical Care and Pediatrics, The Children's Hospital of Philadelphia, University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, (6) Department of Pediatrics, C.S. Mott Children's Hospital, University of Michigan, Ann Arbor, MI

Corresponding Author: Derek B. Hoyme, Division of Pediatric Cardiology, University of Wisconsin-Madison, 600 Highland Ave. H6/535, Madison, WI 53792-4108, dhoyme@wisc.edu, Phone 608-264-4657, Fax 608-265-8065

Abstract

Background: Current guidelines recommend epinephrine every 3 to 5 minutes during cardiopulmonary resuscitation. For adults with in-hospital cardiac arrest (IHCA), longer dosing intervals are associated with improved survival to discharge. This study investigates whether longer epinephrine dosing intervals were associated with improved survival to discharge during pediatric IHCA.

Methods: Retrospective review of AHA Get With The Guidelines-Resuscitation registry identified 1,630 pediatric IHCAs that met inclusion criteria. Average epinephrine dosing interval was defined by dividing duration of resuscitation after first dose of epinephrine by total doses. Average dosing intervals were categorized as 1 to 5 minutes, >5 to <8 minutes, and 8 to <10 minutes/dose. Primary outcome was survival to hospital discharge. Multivariable logistic regression models controlled for age, gender, illness category, location of arrest, arrest duration, time of day, and time to first epinephrine dose. Secondary analysis separated patients on vasoactive infusion at the time of arrest from those without an infusion in place.

Results: Odds ratios (OR) calculated using 1 to 5 minutes/dose interval as reference. For the total cohort, adjusted OR for survival to hospital discharge for >5 to <8 minutes was 1.81 (95% CI 1.26-2.59), and 8 to <10 minutes 2.64 (95% CI 1.53-4.55). For patients not receiving vasoactive infusion, adjusted OR for survival to discharge for >5 to <8 minutes was 1.99 (95% CI 1.29-3.06) and 8 to <10 minutes 2.67 (95% CI 1.14-5.04).

Conclusions: Longer average dosing intervals than currently recommended for epinephrine administration during pediatric IHCA were associated with improved survival to hospital discharge.

Word Count: 3,000